Medical–Biological
Research & Technologies

WB-4MS

Stirred water bath

Operating Manual
Certificate

for versions:
V.3AD
V.3A13
V.3AE

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1. Safety Precautions

The following symbols mean:

Caution: Make sure you have fully read and understood the present Manual before using the equipment. Please pay special attention to sections marked by this symbol.

Caution! Surfaces can become hot during use.

Attention, Magnetism! Effects of a strong magnetic field on the biological systems have to be taken in to account. Magnetic fields can affect heart pacemakers, data carriers, etc.

Caution! Do not use as heat-transfer medium any other liquids except distilled water.

GENERAL SAFETY

- Use only as specified in the Operating Manual provided.
- The unit should be saved from shocks or falling.
- After transportation or storage keep the unit under room temperature for 2-3hrs before connecting to electric circuit.
- Use only cleaning and decontamination methods recommended by the manufacturer.
- Do not make modifications to the design of the unit.
- If water steams away from the bath and the heating element is higher than 100°C the thermostat is automatically powered off. Water may be added to the bath only after cooling of the heating element.

ELECTRICAL SAFETY

- Connect only to electric circuit with voltage corresponding to that on the serial number label.
- Do not plug the unit into an ungrounded power socket, and do not use an ungrounded extension lead.
- Ensure that the main switch and plug are easily accessible during use.
- Disconnect the power plug from power socket before moving the unit.
- If liquid penetrates into the unit, disconnect it from electric circuit and have it checked by a repair and maintenance technician.
- Do not operate the unit in premises where condensation can form. Operating conditions of the unit are defined in the Specifications section.

DURING OPERATION

- Do not switch on the instrument if the heating element is not covered with water.
- Use only thermoresistant glassware.
- Do not leave the operating unit unattended.
- Do not operate the unit in environments with aggressive or explosive chemical mixtures. Please contact manufacturer for possible operation of the unit in specific atmospheres.
- Do not operate the unit if it is faulty or has been installed incorrectly.
- Do not use outside laboratory rooms.

BIOLOGICAL SAFETY

- It is the user's responsibility to carry out appropriate decontamination if hazardous material is spilt on or penetrates into the equipment.

2. General Information

Water bath-thermostat WB-4MS is designed for chemical, pharmaceutical, medical and biological laboratory research that require maintaining a constant temperature from +25 °C to +100 °C.

WB-4MS provides increased temperature stabilization accuracy (up to 0.1°C) due to built-in magnetic stirrer (stirring speed is regulated in 250 to 1000 rpm range).

Ease of maintenance, high temperature maintenance accuracy, compact size and innovative design of the water bath-thermostat meet the requirements of a modern laboratory.

3. Getting started

3.1. Unpacking.

Remove packing materials carefully and retain them for future shipment or storage of the unit. Examine the unit carefully for any damage incurred during transit. The warranty does not cover in-transit damage.

3.2. Complete set. Package contents:

- WB-4MS stirred water bath with a lid .....1 piece
- BP-1 platform ❶ .....1 piece
- magnetic stirring element*.....1 piece
- power cord .....1 piece
- spare fuse (inside the fuse holder).....1 piece
- Operating Manual; Certificate .....1 copy

❶ **BP-1**

* Multi-purpose cylindrical magnetic stirring element (6x25 mm), encapsulated in PTFE.

3.3. Set up:

- place the unit upon even horizontal non-flammable surface at least 20 cm away from any flammable materials;
- remove protective film from the display;
- plug the power cord into the socket on the rear side, and position the unit so that there is easy access to the power switch and the power plug;
- fill the water bath with distilled water to cover heating element (2-3 l).

Caution! Turning the unit on when the heating element is not covered with water is strictly prohibited.

Caution! If the protection from the overheating is activated, switch off the unit and have unit checked by a repair and maintenance technician in accordance with the procedure specified in the Maintenance section.

4. Operation

Recommendations during operation

- The water level in the bath should cover heating element. A user is responsible for monitoring of the water level in the bath.
- If water has steamed away from the bath, the unit should be switched off. Water may be added to the bath only after cooling of the heating element.
- It is recommended to cover the water bath with a lid if the temperature exceeds 50°C.
- Do not fill glassware over the level they are immersed in the water to ensure best temperature uniformity of the samples.

4.1. Connect the power cord to a grounded power socket.

4.2. Switch **ON** the Power switch situated on the front right lower side of the unit.

4.3. The unit will turn on and the following readouts will be shown on the display:

- previously set time (fig.1/1), set speed of magnetic stirring element (fig.1/9) and set temperature of water (fig.1/7) in the upper line (**Set**);
- time indication (STOP Fig.1/2), current speed of magnetic stirring element (fig.1/8) and current temperature of water (fig.1/6) in the lower line (**Actual**).

4.4. **Settings.** Press the **Select** key (Fig.1/3) to choose the parameter to change. Each pressing of the **Select** key consecutively activates the parameters. The active parameter is flashing.

Use the ▲ and ▼ keys (Fig.1/4) to set required value. Pressing the key for more than 2 s will increase the increment.

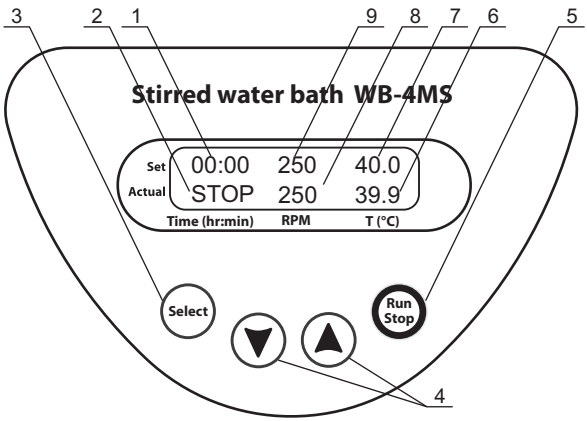

Fig.1 Control panel

4.5. **Temperature setting.** Activate the temperature **T(°C)** parameter (Fig.1/7) by pressing the **Select** key.

Use the ▲ and ▼ keys (Fig.1/4) to set necessary temperature. Pressing the key for more than 2 s will increase the increment.

Heating will be started. The actual temperature value will be shown in the lower line of the display (Fig.1/6).

4.6. **Magnetic stirring element rotation speed setting.** Press the **Select** key several times until RPM speed parameter (Fig. 1/9) is active.

Use the ▲ and ▼ keys (Fig.1/4) to set magnetic stirring element required rotation speed (in the 250 to 1000 rpm range). Pressing the key for more than 2 s will increase the increment. The actual speed value will be shown in the lower line of the display (Fig.1/8)

4.7. **Time setting.** Press the **Select** key to activate the **Time (hr:min)** (Fig.1/1) parameter.

Use the ▲ and ▼ keys (Fig.1/4) to set the required time interval. Pressing the key for more than 2 s will increase the increment.

4.8. Press the **Run/Stop** key (Fig. 1/5) to start the timer. The elapsed time interval will be shown in the lower line of the display (Fig. 1/2).

4.9. After the set time interval elapses the timer gives a sound signal and the flashing STOP indication will be shown on the display. Press the **Run/Stop** key once to stop the sound signal.

Caution! Stopping the timer does not stop the heating/temperature maintenance process. The heating can be stopped by reducing the temperature below 25°C using the ▼ T, C key (Fig. 1/4) (OFF indication will be shown on the display).

4.10. If the working time is set to 00:00, unit operates continuously.

4.11. The timer can be stopped before the set time interval elapses if required by pressing the **Run\Stop** key. When the **Run\Stop** key is pressed again, the timer starts counting up previously set time.

4.12. After the thermal stabilisation of the unit (when the set and current temperature readings become equal) open the water-bath lid, place samples into the bath and close the lid.

4.13. After finishing the operation switch **OFF** the Power switch.

4.14. Disconnect the power cord from electric circuit.

5. Specification

The unit is designed for operation in cold rooms, incubators and closed laboratory rooms at ambient temperature from +4ºC to +40ºC in a non-condensing atmosphere and maximum relative humidity 80% for temperatures up to 31°C decreasing linearly to 50% relative humidity at 40°C.

5.1. Temperature specifications

- Setting range .....+25° ...+100°C
- Regulation range .....5°C above ambient ...+100°C
- Setting increment.....0.1°C
- Stability .....±0.1°C

5.2. General specifications

- Digital time setting range .....1 min - 96 hrs or non-stop
- Stirring speed regulation range .....250 - 1000 rpm
- Bath capacity .....4 l
- Diameter of the holes in the platform.....20 mm
- Dimensions .....340x270x250 mm
- Working area .....235x135x110 mm
- Operating voltage/ power consumption .....230 V, 50 Hz/600 W (2.6 A)
  120 V, 60 Hz/670 W (5.6 A)
  100 V, 50/60 Hz/600 W (6.0 A)
- Weight* .....3.4 kg

  * Accurate within ±10%.

Replacement parts	Description	Catalogue number
BP-1	Standard base platform	BS-010406-AK

Biosan is committed to a continuous programe of improvement and reserves the right to alter design and specifications of the equipment without additional notice.

6. Maintenance

6.1. If the unit requires maintenance electric circuit, disconnect the unit from electric circuit and contact Biosan or your local Biosan representative.

6.2. All maintenance and repair operations must be performed only by qualified and specially trained personnel.

6.3. It is necessary to pour out the water and wash internal surface of the bath (one time a month) with a washing remedy with a neutral pH.

- Discharge water from the tank and dry the unit out if a long downtime is expected.
- Standard ethanol (75%) or other cleaning agents recommended for cleaning of laboratory equipment can be used for cleaning and decontamination of the unit.

6.4. **Fuse replacement**.

- Disconnect the unit from electric circuit.
- Remove the power plug from the rear side of the unit.
- Pull out the fuse holder by applying leverage in recess (Fig.2/A).
- Remove the fuse from the holder.
- Check and replace with the correct fuse if necessary (4 A for 230 V A; 8 A for 100 V / 120 V).

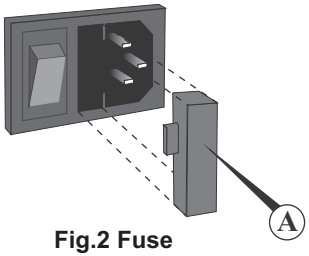

Fig.2 Fuse replacement

7. Warranty and Claims

7.1. The Manufacturer guarantees the compliance of unit with the requirements of Specifications, provided the Customer follows the operation, storage and transportation instructions.

7.2. The warranted service life of unit from date of delivery to the Customer is 12 months. Contact your local distributor to check availability of extended warranty.

7.3. If any manufacturing defects are discovered by the Customer, an unsatisfactory equipment claim shall be compiled, certified and sent to the local distributor address. Please visit www.biosan.lv, Technical support section to obtain the claim form.

7.4. The following information will be required in the event that warranty or post-warranty service comes necessary. Complete the table below and retain for your records.

Model	WB-4MS Stirred water bath
Serial number	
Date of sale	

8. Declaration of Conformity

Declaration of Conformity

Equipment name:	**WB-4MS**
Type of equipment:	Stirred water bath
Directive:	EMC Directive 2004/108/EC Low Voltage Directive 2006/95/EC RoHS 2011/65/EC WEEE 2002/96/EC & 2012/19/EU
Manufacturer:	SIA BIOSAN Ratsupites 7, build.2, Riga, LV-1067, Latvia
Applied Standards:	**EN 61326-1:** Electrical equipment for measurement, control and laboratory use EMC requirements. General requirements **EN 61010-1:** Safety requirements for electrical equipment for measurement, control and laboratory use. General requirements **EN 61010-2-010:** Particular requirements for laboratory equipment for the heating of materials

We declare that this product conforms to the requirements of the above Directive(s)

Signature
Svetlana Bankovska
Managing director
12.06.2013
Date

Signature
Aleksandr Shevchik
Engineer of R&D
12.06.2013
Date

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